A PRELIMINARY NOTE TO THE GYARONG COLOR TERMS

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This small paper aims at describing analytically the color terms of Gyarong (*rGyal rong* in Written Tibetan [WT]), which is a Tibeto-Burman (TB) language spoken in the northwestern part of Sichuan Province, China. For the phonology, outline of grammar and genetic position of this language, refer to Nagano (2003).

Color terminology is an interesting topic of lexical semantics and cognitive anthropology. In the present paper, I will analyze the Gyarong color terms linguistically, and then, touch upon the so-called "evolution" of color terms. The informant is Rev. Sherap Lekden, a Bon monk at Bola (WT 'Bo la) monastery in Ma'erkhang (WT 'Bar khams), Aba Prefecture, Sichuan. His collaboration is highly appreciated.

1. Physics of color

Color is electromagnetic wave, the length of which is roughly between 380 and 740 nanometers. This is the range of wavelength we humans can perceive and is generally called as visible light. For instance, "red" as a pure spectral color has 630-700nm as wavelength and 480-430THz (terahertz) as frequency, while the wavelength of "violet" is 400-450nm with the frequency of 750-670THz.

Needless to say, all the humans can physiologically perceive the continuous optical spectrum equally, but the categorization of colors is multifarious. In Japanese, for example, the traffic light "Go" is called "blue" instead of "green," although Japanese people physically distinguish the two and indeed have two distinct words. It means that "green" is included in "blue" as cognitive category which is reflected in lexical level.

Another example is Bassa in Africa, which has only two color terms, *hui* "cyanic" and *zīza* "xanthic" (Gleason 1961: 4-5). This categorization is parallel to the wavelength distribution of photosynthesis.

2. Description

Color is described by the combination of hue, brightness and saturation (chroma). In Munsell's system which is regarded as the most rigorous way of description, "purple," for instance, for most English speakers is defined as 5P 4/10. 5P is a hue (name of color) for purple, whose brightness is 4 and saturation is full (=10). It is most desirable to use the set of Munsell Color Chart, but it is not so appropriate for fieldwork since its large number of color chips often confuses informants.

I used PCCS Harmonic Color Charts 201-L produced by Japan Color Research Institute, which is accepted among industrial designers worldwide. PCCS arranges 24 key colors in circle and other 204 color chips according to the color tones such as deep, soft, dull, vivid, and so on. I referred to the Munsell Color Charts only when the brightness and saturation markers are particularly investigated.

The key color terms of Gyarong are described as follows:

PCCS code	PCCS hue	Munsell code	Gyarong
1:pR	purplish red	10RP	kə wu rne
2:R	red	4R	kə wu rne
3:yR	yellowish red	7R	kə wu rne
4:rO	reddish orange	10R	li ṭhi
5:O	orange	4YR	li ṭhi
6:yO	yellowish orange	8YR	li ṭhi
6:yO-dp	charcoal	7.5YR 5/8	ser muk
7:rY	reddish yellow	2Y	li ṭhi
8:Y	yellow	5Y	sii po
9:gY	greenish yellow	8Y	sii po
10:YG	yellow green	3GY	ǰaṅ ku
11:yG	yellowish green	8GY	ǰaṅ ku
12:G	green	3G	ǰaṅ ku
13:bG	bluish green	9G	ǰaṅ ku
14:BG	blue green	5BG	ǰaṅ ku
15:BG	blue green	10BG	laṅ kar, ṅon kya
16:gB	greenish blue	5B	laṅ kar, ṅon kya
17:B	blue	10B	laṅ kar, ṅon kya
18:B	blue	3PB	ṅon po
19:pB	purplish blue	6PB	laṅ
20:V	violet	9PB	laṅ
21:bP	bluish purple	3P	laṅ
22:P	purple	7P	laṅ
23:rP	reddish purple	1RP	laṅ
24:RP	red purple	6RP	kə wu rne

In the brightness scale, the following three terms are found:

W	white	N9	kə pram
Gy-8.5	gray	N8	kə pki, kə phyi
Gy-7.5	gray	N7	kə pki, kə phyi
Gy-6.5	gray	N6	kə pki, kə phyi
B	black	N1.5	kə nak

No other color terms are obtained in color chips with different tones of each key term. Several rounds of this check lead the same result, and,

therefore, the eleven lexical items shown above can be regarded as "foci."

2-1. Etymology of the lexical items

kə wu rne
This *kə-* prefixed word behaves as verb in Gyarong, and *rne* seems to be a cognate to PLB *ʔ-ni[1] (Matisoff 2003:40) and PTB *(r-)ni (Benedict 1972:91).

li ṭhi
This word is a loan from WT li khri "minium, red lead."

ser muk
Ser is from WT gser "gold", while *muk* seems to be from WT smug "dark bay, cherry-brown, brownish." Gyarong "charcoal" is expressed as "brownish gold."

sii po
This term is a complete loan from WT ser po [Lhasa Tibetan: ˉseebo] "yellow".

ǰaṅ ku
This is also a loan from WT ljang khu "green". WT ljang khu originally means "(pine) sprout," and it seems cognate to WT lcang "willow." As a universal tendency, "green" stands for "young, vivid, growing, immature." Thus, WT ljang phrug is "a new-born baby."

laṅ kar
Laṅ is a loan from Chinese *lan* 藍 "indigo" and *kar* from WT dkar "white." This particular "blue" is expressed as "whitish indigo."

ṅon kya
The same hue as *laṅ kar* has another name, *ṅon kya*. The first component *ṅon* is a loan from WT sngon po "blue," while *kya* is from WT skya "gray, faint."

ṅon po
A complete loanword from WT sngon po "blue."

laṅ
A loan from Chinese *lan* 藍 "indigo."

kə pram
Behaves as verb in Gyarong, and *pram* seems to be a cognate to PLB *plu (Matisoff 2003: 74) and PTB *plu "white"(Benedict 1972: 205) .

kə pki
Behaves as verb, but, no cognates to PLB or PTB

kə phyi
Behaves as verb, and may be a cognate to PLB *pwəy "gray" and PTB *pwa:y "husks" (Matisoff 2003:213).

kə nak
Behaves as verb, and *nak* is a TB root, corresponding to PLB *ʔ-nak^{L} "deep," PLB *s-nak^{H} "black" (Matisoff 2003:603), and PTB *nak (Benedict 1972:88) and PLB/PTB *s-nak "black"(Matisoff 2003:317) .

2-2. Brightness check

Brightness of each foci color was checked by the Munsell chart. As is seen in *laṅ kar, -kar* appears after *ser, sii, laṅ*, and *ṅon* when these are relatively brighter. *-kar* is from WT dkar "white," which, suffixing to the root, functions as a brightness marker, as is the case in Tibetan (Nagano 1979:16-17).

Besides *-kar*, *-kya* appears for *ṅon* "blue." *-kya* is from WT skya "gray, faint," and it may mark that the root color goes brighter. However, this does not appear for any other root color, and might be a saturation marker for a dull and somber tone.

Darker color is marked by *-nak*, which is from WT nag. This marker appears only with *ser, sii,* and *ṅon.*

2-3. Saturation check

Saturation of each foci color was checked by the Munsell chart, but, there is no such lexical item which marks a more saturated or a less saturated color, except for *-kya* mentioned above.

In Tibetan, WT -dmar "red," when it is suffixed, represents a higher saturation. Thus, WT ljang dmar is not the mixed color of "green" and "red" but highly saturated green (Nagano 1979: 22-24). I could not find any similar marker in Gyarong.

3. Structural analysis

The following can be deducted from the description shown in the previous section. For the hues, we have four kinds of lexical items:

— *kə-* prefixed terms, which behave as verb,
— loans from WT,
— loans from Chinese, and
— compound of loans from WT and Chinese.

For brightness, *-kar* "brighter" and *-nak* "darker" function as the markers. Both of them are loans from WT.

For saturation, we find no marker for it.

4. Developmental analysis

There seem to be several ways of establishing criteria for identifying basic or fundamental color terms. On the anthropology side, Berlin and Kay proposed their criteria to identify universal color categories and their evolutionary patterns, which has been widely accepted. Although their hypothesis was criticized from various angles, it is still valid in the sense that they pointed out monolexemicity and mono-significance as primary criteria for basic color terms (BCT; Berlin and Kay 1969:5ff, Kay 1975).

In this paper, I would like to claim another criteria based on linguistic viewpoint. They are:

a. whether it is root-morphemic,
b. whether it is mono-significant,
c. whether it is not a loan from other language, and
d. whether the root-morpheme is not reminiscent of some substance.

Applying these criteria to the lexical items shown in my description, only the *kə-* prefixed lexical items satisfy all the conditions above and are defined as the BCT of Gyarong.

All of the rest violate criteria (c) and (d), and they are not BCT's. Unlike Tibetan color terms, it is extremely difficult to determine the degree of basicness of non-BCT's.

As I mentioned earlier, *kə-* prefixed lexical items behave as verbs. This is parallel to the system of Tibetan color terms, in which -po suffixed ones are original adjectives descriptively and historically, behaving as verbs, and are regarded as primary BCT's.

5. Universal evolution?

5-1. Berlin and Kay's hypothesis on evolution of color terms

Interpretation of colors has been attempted since the time of Aristotle (for instance, his *De Coloribus* 792a:3-20, 1913 Oxford), and the scientific investigation of color was accelerated by the 18th century physics. In the field of lexical semantics, active research has been done for the past three decades by some anthropologists such as Conklin, Berlin, Kay et al. Above all, Berlin and Kay's hypothesis proposed in 1969 caused a great sensation among both anthropologists and linguists, and is now

regarded as a good starting point.

Their idea, which is basically unchanged from 1969, is that, contrary to the Sapir-Whorf hypothesis, in the case of color at least, rather than language determining perception, it is perception that determines language; in other words, Berlin and Kay tried to do away with relativism and to establish semantic universalism. In Kay and McDaniel's 1978 article, they seem to deepen this attitude, attacking Katz's idea of "semantic discreteness" and, instead of this, proposing a "fuzzy set" theory which serves to provide the most concise and adequate description of the semantics of BCT; that is, they abandoned discrete semantic primes and adopted continua.

Berlin and Kay set criteria for identifying BCT and applied these to their fieldwork (20 languages) and laboratory work (78 languages). Their criteria for BCT are: (a) it is monolexemic, (b) it is monosignificant, (c) its application is not restricted to a narrow class of objects, (d) it is relatively salient as evidenced by frequent and general use. These are followed by four sub-criteria, including those which exclude name of objects and recent foreign loans (Berlin and Kay 1969:6) .

Their basic experimental finding after applying the criteria is that "color categorization is not random and that the foci of BCT are similar in all languages" (Berlin and Kay 1969: 10). They conclude that "Although different languages encode in their vocabularies different numbers of basic color categories, total universal inventory of exactly eleven basic categories exists from which the eleven or fewer basic color terms of any given language are always drawn….The distributional restrictions of color terms across languages are: 1. all languages contain terms white and black, 2. if a language contains three terms, then it contains a term for red, 3. if a language contains four terms, then it contains a term for either green or yellow, 4. if a language contains five terms, then it contains terms for both green and yellow, 5. if a language contains six terms, then it contains a term for blue, 6. if a language contains seven terms, then it contains a term for brown, and, 7. if a language contains eight or more terms, then it contains a term for purple, pink, orange, grey, or some combination of these"(Berlin and Kay 1969: 2-3).

On the basis of their findings above, they interpreted that it "represents not only a distributional statement for contemporary languages but also the chronological order of the lexical encoding of basic color categories in each language. The chronological order is in turn interpreted as a sequence of evolutionary stages" (Berlin and Kay 1969: 4-5). Their temporal-evolutionary ordering is illustrated as follows:

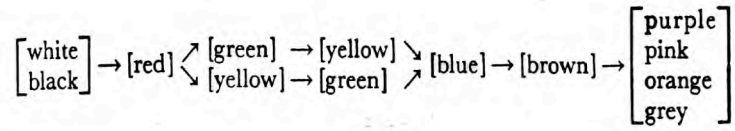


FIGURE 1.

This chart was improved upon several times and was finally shown as follows in Kay and McDaniel's paper (1978: 639):

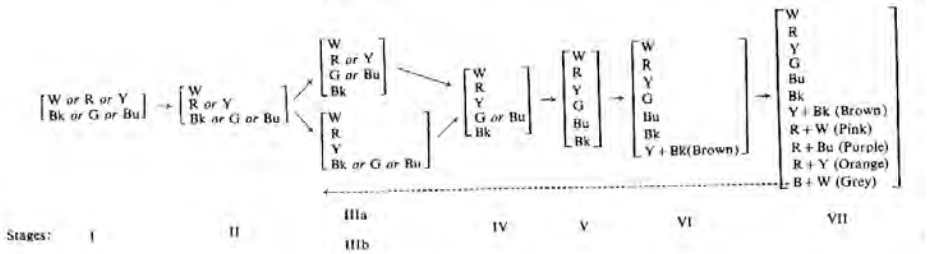


FIGURE 2.

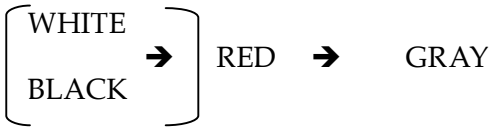
Their work on color terms is a great contribution for the universal approach to semantic categorization. However, there seem to remain some problems to solve:

They seem to have relied excessively upon "foci" when they decided BCT and ignored the etymology of each term. English belongs to Stage VII of Figure 2, but "pink," for instance, is one of carnations (therefore, a name of flower), and "orange" is apparently from the name of fruit. According to me, these two cannot be regarded as BCT of English.

Kay and McDaniel says "this distribution of color categories in the ethnographic present must reflect a sequence through which EACH language has to pass as it changes its number of basic color terms." If they wish to attest this point, they are supposed to investigate each language's history more carefully.

5-2. Gyarong's basic color terms and their evolution

As I mentioned in Chapter 4 of this paper, RED, WHITE, BLACK and GRAY are the BCT's of Gyarong. If we apply this categorization to Berlin and Kay's Figure 1, its chronological order would be:



The sequence of WHITE, BLACK and RED perfectly corresponds to Stage II of Kay and McDaniel's Figure 2, whereas GRAY's position is lost, since it appears at Stage VII only. Berlin and Kay first thought that GRAY may occur after Stage IV, but this idea was instantly criticized, and they re-defined GRAY as a "wild card at various points in the sequence"(Kay and McDaniel 1978: 640). Similar discrepancy occurs for Russian *goluboy* (faint blue); faint color's position in the sequence must be reconsidered, whether you believe in "wild card" or not.

6. Epilogue

This small paper is a humble contribution to the lexical semantic approach to Gyarong that was left unstudied. But, it has a limited scope in extensiveness of both field research and dialect variation. A more detailed research is expected in the near future.

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